

|   | L # | Hits  | Search Text   | DBs  | Time Stamp          |
|---|-----|-------|---|--|---------------------|
| 1 | L1  | 579   | printed adj circuit adj<br>board and hot adj pressing | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>08:55 |
| 2 | L2  | 33344 | copper adj foil                                       | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>08:55 |
| 3 | L3  | 176   | 1 and 2   | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>08:55 |

|   | L # | Hits | Search Text                       | DBs  | Time Stamp          |
|---|-----|------|-----------------------------------|--|---------------------|
| 4 | L4  | 138  | temperature and 3                 | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>08:55 |
| 5 | L5  | 4    | s-hte                             | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>08:55 |
| 6 | L6  | 127  | mitsui adj mining adj<br>smelting | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>08:55 |

|   | L # | Hits | Search Text  | DBs  | Time Stamp          |
|---|-----|------|--|--|---------------------|
| 7 | L7  | 26   | 2 and 6  | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>08:56 |
| 8 | L8  | 9    | (("6649274") or<br>("20010008091") or<br>("5674611") or ("6479170")<br>or ("5679230")).PN. | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>09:59 |
| 9 | L9  | 0    | WO0134879  | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>09:19 |

|    | L # | Hits | Search Text                 | DBs  | Time Stamp          |
|----|-----|------|-----------------------------|--|---------------------|
| 10 | L11 | 1    | WO01/34879                  | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>09:19 |
| 11 | L12 | 16   | WO and 6                    | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>09:19 |
| 12 | L13 | 2    | ("4937133"   "5153050").PN. | US-<br>PGPUB;<br>USPAT;<br>USOCR   | 2005/06/06<br>09:28 |
| 13 | L14 | 1    | ("6649274").URPN.           | USPAT  | 2005/06/06<br>09:33 |
| 14 | L15 | 2    | ("5583320").PN.             | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>09:33 |

|    | L # | Hits | Search Text | DBs  | Time Stamp          |
|----|-----|------|-------------|--|---------------------|
| 18 | L19 | 54   | shte        | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:00 |
| 19 | L20 | 0    | 18 and 19   | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:00 |
| 20 | L21 | 0    | 18 and 6    | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:00 |

|    | L # | Hits  | Search Text  | DBs  | Time Stamp          |
|----|-----|-------|--|--|---------------------|
| 21 | L22 | 9     | 18 and 2   | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:21 |
| 22 | L23 | 1     | 18 and ("copper clad laminate" or "copper clad laminated" or "copper clad laminating") | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:22 |
| 23 | L24 | 24941 | "hot pressing"   | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:22 |

|    | L # | Hits | Search Text  | DBs  | Time Stamp          |
|----|-----|------|--|--|---------------------|
| 24 | L25 | 1    | 18 and 24  | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:23 |
| 25 | L26 | 88   | 18 and (press or pressing<br>or pressed) and (copper or<br>Cu) and temperature | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:23 |
| 26 | L27 | 60   | 26 and ((@ad<"20000825") or<br>(@rlad<"20000825"))                             | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:32 |

|    | L # | Hits | Search Text                            | DBs  | Time Stamp          |
|----|-----|------|--|--|---------------------|
| 27 | L28 | 40   | "copper foil" near4<br>recrystalliz\$6 | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>10:33 |



|   | L # | Hits | Search Text     | DBs  | Time Stamp          |
|---|-----|------|-----------------|--|---------------------|
| 1 | L1  | 2    | ("5674611").PN. | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>14:02 |
| 2 | L2  | 2    | ("5679230").PN. | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>14:05 |
| 3 | L3  | 2    | ("5583320").PN. | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>14:55 |

|   | L # | Hits | Search Text  | DBs  | Time Stamp          |
|---|-----|------|--|--|---------------------|
| 4 | L4  | 6639 | ((257/762) or (257/758) or<br>(257/700) or<br>(257/701)).CCLS. | US-<br>PGPUB;<br>USPAT;<br>USOCR;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2005/06/06<br>14:56 |
| 5 | L5  | 244  | 4 and (copper adj foil)  | US-<br>PGPUB;<br>USPAT;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B           | 2005/06/06<br>14:57 |

US-PAT-NO: 4528833

DOCUMENT-IDENTIFIER: US 4528833 A

TITLE: Method for removal of curling of circuit  
printable flexible substrate

----- KWIC -----

Detailed Description Text - DETX (25):

Also preferred are an electrolytic copper foil or a rolled copper foil being subjected to an annealing and recrystallizing process. The annealing and recrystallizing process can be carried out by heating a rolled copper foil to 200.degree.-400.degree. C. for 10-60 min. or heating an electrolytic copper foil to at 450.degree.-600.degree. C. for 30-60 min. Particularly preferred is a rolled copper foil annealed and recrystallized, because the process for annealing and recrystallizing the rolled copper foil can be done at a relatively low temperature. Accordingly, the annealing and recrystallizing process can be applied to a rolled copper foil in a process for the preparation of the aromatic polyamideimide or polyimide film on the foil.

Detailed Description Text - DETX (91):

The substrate was further heated to 300.degree. C. for 12 hours so as to have the copper foil annealed and recrystallized.

PAT-NO: JP02002067221A  
DOCUMENT-IDENTIFIER: JP 2002067221 A  
TITLE: COPPER CLAD LAMINATED SHEET  
PUBN-DATE: March 5, 2002

INVENTOR-INFORMATION:

| NAME             | COUNTRY |
|------------------|---------|
| YAMAMOTO, TAKUYA | N/A     |
| NAGATANI, SEIJI  | N/A     |
| NAKANO, MASAHIKO | N/A     |

ASSIGNEE-INFORMATION:

| NAME                            | COUNTRY |
|---------------------------------|---------|
| MITSUI MINING & SMELTING CO LTD | N/A     |

APPL-NO: JP2000255490

APPL-DATE: August 25, 2000

INT-CL (IPC): B32B015/08, H05K001/09 , H05K003/00

ABSTRACT:

PROBLEM TO BE SOLVED: To reduce the warpage problem in a double-side copper clad laminated sheet having copper foils different in thickness laminated to both surfaces thereof to enhance the production efficiency of a printed wiring board.

SOLUTION: In the double side copper clad laminated sheet having copper foils different in thickness laminated to both surfaces thereof, a first copper foil, which is not recrystallized by hot processing at the time of the production of a copper clad laminated sheet, is used on a single surface side and a second copper foil having recrystallizing properties by hot processing at the time of

the production of a copper clad laminated sheet is used on other surface side  
and the thickness of the second copper foil is larger than that of the first copper foil.

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PAT-NO: JP02001262296A

DOCUMENT-IDENTIFIER: JP 2001262296 A

TITLE: ROLLED COPPER FOIL AND ITS MANUFACTURING  
PROCESS

----- KWIC -----

Abstract Text - FPAR (1):

PROBLEM TO BE SOLVED: To provide a manufacturing process capable  
of greatly  
developing a cubic texture independently of the thickness of a copper  
foil when  
recrystallization annealing is performed.

PAT-NO: JP02001262296A  
DOCUMENT-IDENTIFIER: JP 2001262296 A  
TITLE: ROLLED COPPER FOIL AND ITS MANUFACTURING  
PROCESS  
PUBN-DATE: September 26, 2001

INVENTOR-INFORMATION:

| NAME              | COUNTRY |
|-------------------|---------|
| KUROSAWA, YOSHIO  | N/A     |
| HATANO, TAKATSUGU | N/A     |

ASSIGNEE-INFORMATION:

| NAME                          | COUNTRY |
|-------------------------------|---------|
| NIPPON MINING & METALS CO LTD | N/A     |

APPL-NO: JP2000075470

APPL-DATE: March 17, 2000

INT-CL (IPC): C22F001/08, B21B001/40 , B21B003/00 , C22C009/00 ,  
C22F001/00

ABSTRACT:

PROBLEM TO BE SOLVED: To provide a manufacturing process capable of greatly developing a cubic texture independently of the thickness of a copper foil when recrystallization annealing is performed.

SOLUTION: The rolled copper foil can be obtained by applying hot rolling to an ingot of trough pitch copper or oxygen-free copper, repeating cold rolling and annealing, and finally carrying out finishing to  $\leq 0.050$  mm thickness by cold rolling. In the method for manufacturing the rolled copper foil where a cubic texture is extremely developed with recrystallization annealing is applied, the following steps are successively carried out: (1) cold

rolling at  
&ge;90% draft; (2) recrystallization annealing at 150-250&deg;C  
furnace  
temperature for 1-10h or recrystallization annealing at 500-800&deg;C  
furnace  
temperature for 5-60 s; and cold rolling at 5-40% draft.

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PAT-NO: JP408283886A  
DOCUMENT-IDENTIFIER: JP 08283886 A  
TITLE: ELECTROLYTIC COPPER FOIL FOR FLEXIBLE WIRING  
BOARD  
PUBN-DATE: October 29, 1996

INVENTOR-INFORMATION:

NAME

SUZUKI, AKITOSHI

OTSUKA, HIDEO

FUKUDA, SHIN

SAITO, TSUTOMU

ASSIGNEE-INFORMATION:

NAME

FURUKAWA CIRCUIT FOIL KK

COUNTRY

N/A

APPL-NO: JP07107098

APPL-DATE: April 7, 1995

INT-CL (IPC): C22C009/00, C22F001/08 , H05K001/03 , H05K001/09

ABSTRACT:

PURPOSE: To produce copper foil which has excellent elongatability and flexing resistance at ordinary and elevated temps. and is recrystallizable at a low temp. by suppressing the carbon content in the copper foil produced by an electrolytic method to a specific value or below and heat treating the copper foil at a specific temp.

CONSTITUTION: A Ti drum-shaped cathode 2 is arranged in a concentrical Pb anode 1 on the outer side. An electrolyte 3 contg. proper amts. of copper, sulfuric acid, chlorine ions and org. matter, such as hydrolyzed glue is put

into an electrolytic cell in which the anode is formed. While the drum-shaped cathode 2 is kept rotated, current is supplied between the anode 1 and the cathode 2 to electrolytically deposit copper on the surface of the drum-shaped cathode 2. The copper is taken up as the copper foil 4. In such a case, the carbon content in the copper foil 4 is confined to  $\leq 18$ ppm by controlling the amt. of the glue as the org. matter in the electrolyte 3. The resulted copper foil 4 is heat treated at 100 to 300 $^{\circ}$ C in a gaseous nitrogen atmosphere. The copper foil which is recrystallizable at a low temp. of about 120 $^{\circ}$ C, has the excellent performance compared with the conventional rolled copper foil and has the broad width hardly producible from the rolled copper foil is thus stably and inexpensively produced.

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